

ON THE IDENTITY OF *BRONTEUS PARTSCHI*, DE KONINCK (NON BARRANDE), FROM THE UPPER SILURIAN ROCKS OF NEW SOUTH WALES.

By R. ETHERIDGE, JUNR.—PALÆONTOLOGIST TO THE AUSTRALIAN MUSEUM, AND GEOLOGICAL SURVEY OF N. S. WALES—AND JOHN MITCHELL, OF THE PUBLIC SCHOOL, NARELLAN.

(PLATE XVIII.)

It is our intention to publish a series of papers dealing with the revision of the Silurian Trilobites of New South Wales. Ample material exists in the cabinet of one of us, collected in the Bowning and Yass districts. We shall in addition be able to draw upon the resources of the Mining and Geological Museum, and through the courtesy of Professor W. J. Stephens, M.A., of that of the Macleay Museum at the University. In the latter is now deposited the collection of Mr. Chas. Jenkins, L. S., late of Yass, containing a large number of specimens obtained in the neighbourhood of Yass. We are also permitted to make use of a small number forwarded by Mr. R. L. Jack, the Government Geologist of Queensland, and collected by Mr. J. K. Hume, at Limestone Creek, near Bowning. Lastly some well preserved specimens are to be found in the Australian Museum, which will be referred to in passing.

Whilst glancing generally through the material at our disposal we have been struck by the difficulty of satisfactorily reconciling the Trilobite referred by the late Prof. de Koninck to *Bronteus Partschi*, Barr., with the true species of that name. We consider the Australian species so named to be a distinct form, and propose to separate it under the name of *B. Jenkinsi*, after the gentleman previously mentioned, who has written more than one paper on the geology of the Yass district.

Genus *BRONTEUS*, Goldfuss, 1839.

(Nova Acta Cæs. Leop. Carol. Nat. Curios. XIX., pt. 1, p. 360.)

BRONTEUS JENKINSI, sp.nov.

Bronteus Partschi, de Koninck, (*non* Barr.) Foss. Pal. Nouv. Galles du Sud, 1876, pt. 1, p. 57.

Bronteus sp. Jenkins, P.L.S.N.S.W., 1879, III., pt. 3, p. 217, t. 17, f. 3, 4, 6, 8.

Sp. Char. General form of the body oblong-oval, with straight and parallel sides. *Cephalic Shield* sub-semicircular, about three-fourths the width of the thorax. Glabella battle-axe-shaped, extending to the front margin, and ornamented with concentric anastomosing lines; anterior facial grooves long and somewhat arched. Middle facial grooves marked by faint depressions which do not communicate with the axial furrows, posterior facial grooves wide and short; neck furrow shallow, arched forward medially, and similarly curved forward at its lateral terminations on joining the axial furrows; neck segment moderately wide and gently arched, convexly directed backwards, unarmed; axial furrows much curved, outwards anteriorly, similarly curved posteriorly, but less so; fixed cheeks moderately large, sub-crescentic in shape, with a rather large and pronounced eye lobe; facial sutures anteriorly from the eye to the front angle of the glabella tolerably straight, then curve inwards along the front of the glabella, to about one-sixth of the glabella's front measurement, posteriorly short, sharply curved, and cutting posterior margin about midway between the central line and lateral margins. Free cheeks large, covered with irregular, somewhat vertical wrinkles, crossed by finer lines; limb striated; genal spines stout and broad, extending to and inclusive of third thoracic segment; eyes large, crescentic, with small and numerous facets. *Thorax* wider than long, about one-fourth longer than the head; axis about a sixth wider than the pleuræ and their spines together, slightly arched; axial furrows well marked; pleuræ nearly flat, with short claw-like spines, very narrow grooves bordering the entire posterior margins; semi-facets short and well marked; ornament of transverse wrinkles. *Pygidium* oblong-semicircular, wider than long, four-fifths as long as thorax is wide, anterior margins straight and parallel-sided, posterior

semi-circular, anterior or thoracic margin straight, with a strongly marked axial facet; axis somewhat deltoid, sub-conical, or sub-triangular, less than one-fourth the length of entire pygidium, simulating about seven or eight obscurely subdivided segments; edges emarginate; pleuræ convex at their inner ends, becoming compressed outwardly, gradually widening from behind forwards; central, or axial pleura widest and undivided; inter-pleural grooves well marked, each pleura strongest along its inner margin; transversely concentrically crenated, also with a number of indented lines traversing the medial part of the surface; limb flat, and moderately wide and striated sub-concentrically.

Obs.—In comparing this with other described species, we may at once dismiss all those possessing a bifurcate median pleura in the pygidium, which in *B. Jenkinsi* is entire. We believe this species to be that referred to by de Koninck as *B. Partschi*, Barr., and it certainly is the form figured by Jenkins without specific name, although he distinctly called attention to the resemblance of his fossil to the above species. In the first place *B. Jenkinsi* acquired much larger dimensions, as a rule, than *B. Partschi*, one of the pygidia of our species being equal to the entire length of the body in the Bohemian Trilobite. In the second place, the much stronger and better marked glabella furrows, the more definite segmentation, and dissimilar axis of the tail, and probably the more intricate ornamentation of the test separate the species. It further differs in possessing a much squarer pygidium, arising from the straight sides, and in this character there is also a marked discrepancy from the structure of such species as *Bronteus Edwardsi*, Barr., *B. planus*, Corda, *B. Brongniarti*, and others. On the other hand *Bronteus Jenkinsi* resembles *B. Partschi* in the forward extension of the glabella and the near equality in width of the thoracic axis to the pleuræ.

On examining a number of specimens we find that the thoracic axis is about one-sixth wider than the pleuræ, especially in large examples; but in two medium-sized specimens the relative widths practically agreed. We also find that the proportionate length

and width of the pygidium varies to some extent. The relative length of thorax to pygidium runs about 2:3. Four specimens complete enough to take measurements gave thorax to pygidium 9:14, 10:15, 11:15, and 14:20 in sixteenths of an inch, which in each case approaches the ratio above given. The ratio between the length of cephalic shield and thorax is much more variable. The measurements of three specimens gave 13:17, 15:18 and 20:28, as the ratios in thirty-seconds of an inch, the difference being greatest in the largest specimen measured.

Mr. Jenkins assigns eleven thoracic segments to his species, but we cannot perceive more than the normal number found in this genus, viz., ten. He also describes three in the axis of the pygidium but our best preserved tails possess certainly seven.

Loc. and Horizons.—Bowling Creek, in the Lower Trilobite Bed* of the Bowling series (? Wenlock), associated with *Bronteus longespinifex*, Mitchell, *Encrinurus Mitchelli*, Foerste, *Acidaspis Verneuli*, Barr., and *Sphaerexochus mirus*, Beyr. The Hume beds (Jenkins), are identical with the Bowling series, but Mr. Jenkins places his Yass beds below the Hume beds or Bowling series. From both of these beds Mr. Jenkins collected our species [Hatton's Corner in the Hume beds.] We are disposed to rank the Yass beds with the lower portion of the Bowling series embracing at least the Lower Trilobite bed, because the fossils of the two localities seem to agree closely.

EXPLANATION OF PLATE.

(All figures nat. size, except otherwise indicated.)

- Fig. 1.—Pygidium and portion of thorax of a fairly large specimen, rather narrow tailed.
 Fig. 2.—Cephalic shield of a large specimen, with free cheeks missing.
 Fig. 3.—Pygidium from a well preserved, large and wide specimen.
 Fig. 4.—Free Cheek.
 Fig. 5.—Free Cheek ($\times 3$), showing ornamentation and facets of eye.
 Fig. 6.—Free Cheek (mould) $\times 2$, showing ornamentation more distinctly.
 Fig. 7.—Restored outline, drawn to agree in proportions with our largest pygidium.

* Mitchell, Proc. Australasian Assoc. Adv. Sci. for 1888 [1889], 1. p. 294.